Remarks/Arguments:

Contrary to the Examiner's contention that the words "mathematical matrix" are not supported by the original disclosure, Applicants respectfully submit that the original disclosure is all about mathematical matrices, and, therefore "mathematical matrices" are disclosed to one skilled in the art, even through the word "mathematical" does not appear immediately before the word "matrix" in the text of Applicants' specification. The word "mathematical," when added to claims 3, 7, 11, and 15 in the Response dated August 1, 2001, characterized the "matrix" that was already specified by these claims. There follows quotations from Applicants' specification that provide support for characterizing Applicants' matrices as being "mathematical matrices."

As set forth in Applicants' specification at page 9, lines 9 through 13

"If a data array is sparse, for example, then by visualizing the data array it may be possible to observe certain patterns. Sparsity patterns may lead to the choosing of suitable numerical methods, or reordering schemes with which to treat the data array" (emphasis added)

"Sparsity" is a characteristic of a "mathematical matrix." One applies a numerical method to something that is "mathematical."

As set forth in Applicants' specification at page 12, lines 10 and 11 in connection with the description of an example of the present invention

"Matrices are useful constructs both in theoretical and applied mathematical analysis" (emphasis added).

The example being described, which is also illustrated, is the application of the present invention to electrical network conductance. As indicated, this example of Applicants' invention involves the application of Kirchoff's Current Law (KCL).

"KCL is a conservative law which states that the sum of the currents 'entering' and 'exiting' a node in an electrical network equals zero"

There should be no doubt that KCL is a "mathematical" expression.

As set forth in Applicants' specification at page 13, lines 7 et seq

"In matrix form the representation of the circuit of Fig. 5 is denoted by the following equation" (emphasis added)

There should be no doubt that a "mathematical matrix" is described at least at this point in Applicants' specification.

As set forth a page 15, lines 9 et seq

"The following <u>matrix-vector equation</u> G*v = i corresponds to such a reorganization of matrix G for the circuit diagrams of Figs. 7 and 8" (emphasis added)

There should be no doubt that at least at this point in Applicants' specification a "mathematical matrix" is described.

Submitted herewith is a TECHNICAL DECLARATION by Daria R. Dooling, an expert in the field of the present invention. Ms. Dooling's qualifications are set forth in a TECHICAL DECLARATION dated June 11, 2002 that was filed with a RESPONSE dated June 12, 2002.

In the attached TECHNICAL DECLARATION, Ms. Dooling (a) states that the original disclosure of Applicants' invention is all about mathematical matrices, (b) recites the foregoing quotations from Applicants' specification and the accompanying comments, and (c) states that one skilled in the art readily recognizes that the description of Applicants' invention in Applicants' original disclosure describes "mathematical matrices."

Applicants, by the remarks set out above, taken in conjunction with the Dooling TECHNICAL DECLARATION, have made a very strong showing that there is support in Applicants' specification for the words "mathematical matrix." If the Examiner maintains her position, Applicants respectfully request the Examiner to offer evidence that goes against Applicants' very strong showing and refutes Applicants' remarks that support Applicants' position. Simply taking the position that the words "mathematical matrix" are not supported by the original disclosure, without considering the contents of Applicants' specification <u>taken as a whole</u> and the meaning to one skilled in the art of "mathematical matrix" in the context of Applicants' invention, is inadequate to maintain the position that there is no support for "mathematical matrix" in Applicants' original disclosure.

The fact that the word "mathematical" does not appear immediately before the word "matrix" in the text of Applicants' specification does not prove that Applicants' specification, <u>read in its entirety</u>, does not support a disclosure of a "mathematical matrix." Words other than the words "mathematical matrix" are used in Applicants' specification to disclose to one skilled in the art a mathematical matrix. This is argued above and by the Dooling TECHNICAL DECLARATION.

With nothing more from the Examiner than the statement of no support for "mathematical matrix," Applicants understand that the diametrically opposed positions are the Examiner's unsupported opinion versus Applicants' opinion supported by facts and the Dooling TECHNICAL DECLARATION.

There is, however, one further step the Examiner can take by which Applicants might get a better understanding of the Examiner's position. The Examiner can explain why she changed her mind about entering the amendments to the claims made in the August 1, 2001 Amendment. (It should be noted that in Paragraph 2 on Page 2 of the DETAILED ACTION of August 28, 2001, issued in response to Applicants' August 1, 2001 Amendment and by which the word "mathematical" was added to the claims in front of the word "matrix," the Examiner specifically acknowledged that claims 3, 7, 11 and 15 --- into which the word "mathematical" was inserted ---- have been amended). The words "mathematical matrix" have been in the claims for twenty months. No objection was raised at the time "mathematical" was added to the claims that the amendments to the claims were not supported by the original disclosure. Undoubtedly, the Examiner determined at that time that the words "mathematical matrix" were supported by the original disclosure. Otherwise, the Examiner, fully cognizant of the amendments to claims 3, 7, 11 and 15, would have objected then to the amendments to the claims and refused entry of the amendments.

Twenty months later, and after the exchange of about ten papers between Applicants' and the Examiner, many of which stated that Applicants' invention included "a mathematical matrix generated as a direct result of data values" and were accepted by the Examiner without objection, the Examiner has changed her mind and decided that the previously entered amendments to the claims should have been objected to because "it introduces new matter into the disclosure." In fact, it was the Examiner who, during a telephone interview held on December 12, 2002 and made of record in an Interview Summary dated December 16, 2002
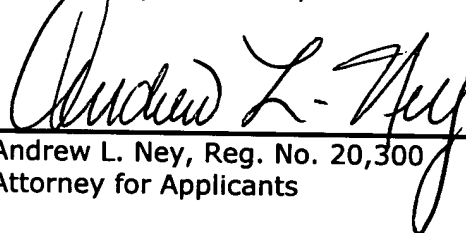
> "recommended amending claim 2 by deleting the first claim feature of claim 2 and replacing it with the following language: 'extracting a plurality of data values associated with a mathematical matrix to generate a grid based on a plurality of data values' (emphasis added) ...... and also recommended modifying the independent claims 1, 5, 6, 9, 10, 13 and 14 in the same manner to place the claims in condition for allowance" (emphasis added).

Clearly, this supports the determination, made in August 2001, that the amendments to the claims were supported by the original disclosure. Consequently, with nothing more, Applicants' are at a loss in trying to understand why, on January 29, 2003, the Examiner determined for the first time that the words "mathematical matrix" are not supported by the original disclosure when, on December 16, 2002 and presumably after a detailed study of the application and its prosecution history, the Examiner recommended taking action by which one can only conclude that the words "mathematical matrix" are supported by the original disclosure.

Even now the Examiner is treating the claims as if they include the words "mathematical matrix." In the Final Office Action dated March 13, 2003, the Examiner, in paragraph 2, refused entry of the August 16, 2001 amendments, yet in the **Response to Arguments** portion the Examiner (1) indicates that Applicants' arguments, that emphasized the importance of the "mathematical matrix" limitation, "have been fully considered but they are not persuasive," and (2) then offers comments at two points that can only be meaningful if the claims are being read by the Examiner to include the words "mathematical matrix."

As indicated above, Applicants believe that they are likely to understand better the basis of the Examiner's position if she provides an explanation of why recently she again took up the question of finding support in the original disclosure for a "mathematical matrix" and what caused her to change her mind in determining that a "mathematical matrix" is not disclosed in Applicants' specification.

Respectfully submitted,

Andrew L. Ney, Reg. No. 20,300
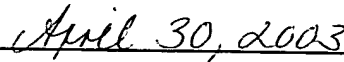Attorney for Applicants

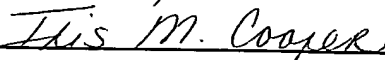ALN/imc

Attachments: Technical Declaration

Dated: April 30, 2003

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The Assistant Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. 09-0456 (IBM Corporation) of any fees associated with this communication.

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April 30, 2003

Iris M. Cooper,

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